

WHAT IS CLAIMED IS:

1. A method for determining EGR flow in an internal combustion engine, such flow being from an exhaust manifold of the engine to an intake manifold of the engine through an EGR valve, the method comprises:

providing an indication of the flow of exhaust gas into the intake manifold through such inlet from information provided by a mass air flow sensor disposed upstream of an exhaust gas inlet to the intake manifold and information provided by a manifold absolute pressure sensor disposed downstream of such exhaust gas inlet; and

comparing the estimated exhaust gas flow into the intake manifold with a commanded exhaust gas flow to the EGR valve.

2. A method for determining EGR flow in an internal combustion engine, such flow being from an exhaust manifold of the engine to an intake manifold of the engine through an EGR valve, the method comprises:

determining actual manifold absolute pressure readings from a manifold absolute pressure sensor disposed downstream of an inlet for the EGR flow into the intake manifold;

obtaining readings of airflow into the intake manifold upstream of the EGR inlet;

computing an inferred manifold absolute pressures from the airflow readings;

obtaining samples of a desired EGR flow signal fed to a valve for controlling the EGR flow into the inlet;

determining a coefficient B2, such coefficient being a function of: (A) the differences between the determined actual manifold absolute pressure readings and the calculated manifold absolute pressures; and (B) the obtained desired EGR flow samples; comparing the determined coefficient B2 with a predetermined value for B2.

3. A system for determining EGR flow in an internal combustion engine, such flow being from an exhaust manifold of the engine to an intake manifold of the engine through an EGR valve, the system comprising:

an manifold absolute pressure sensor disposed downstream of such exhaust gas inlet;

476 an a mass air flow sensor disposed upstream of an exhaust gas inlet to the intake
477 manifold for providing an indication of the flow of exhaust gas into the intake manifold
478 through such inlet from information provided by the mass air flow sensor and information
479 provided by the manifold absolute pressure sensor; and

480 a processor for comparing the estimated exhaust gas flow into the intake manifold
481 with a commanded exhaust gas flow to the EGR valve.

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483 4. An article of manufacture, comprising:

484 a computer storage medium having a computer program encoded therein for
485 determining EGR flow in an internal combustion engine, such flow being from an exhaust
486 manifold of the engine to an intake manifold of the engine through an EGR valve, , said
487 computer storage medium comprising:

488 code for providing an indication of the flow of exhaust gas into the intake manifold
489 through such inlet from information provided by a mass air flow sensor disposed upstream of
490 an exhaust gas inlet to the intake manifold and information provided by an manifold absolute
491 pressure sensor disposed downstream of such exhaust gas inlet; and

492 code for comparing the estimated exhaust gas flow into the intake manifold with a
493 commanded exhaust gas flow to the EGR valve.

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495 5. The article of manufacture recited in claim 4 wherein the computer storage medium
496 comprising a semiconductor chip.